DEFENSE INFORMATION SYSTEMS AGENCY
JOINT INTEROPERABILITY TEST COMMAND
2001 BRAINARD ROAD
FORT HUACHUCA, ARIZONA 85613-7051

IN REPLY REFER TO: Networks and Transport Division (JTE)

1 June 2004

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Special Interoperability Test Certification of the Compunetix Mini-CONTEX® Audioconferencing Bridge with Software Release 1.836.d to Support the United States Strategic Command (USSTRATCOM) Strategic Emergency Actions Telephone System (SEATS)

References: (a) DOD Directive 4630.5, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 11 January 2002
(b) CJCSI 6212.01C, "Interoperability and Supportability of Information Technology and National Security Systems," 20 November 2003

1. References (a) and (b) establish the Defense Information Systems Agency, Joint Interoperability Test Command (JITC), as the responsible organization for interoperability test certification. Additional references are provided in enclosure 1.

2. The Compunetix Mini-CONTEX® Audioconferencing Bridge with Software Release 1.836.d, hereinafter referred to as the System Under Test (SUT), meets all of the critical interoperability requirements and is certified for use within the Defense Switched Network (DSN) to support the United States Strategic Command (USSTRATCOM) Strategic Emergency Actions Telephone System (SEATS). Critical interoperability requirements are set forth in reference (c) and testing was conducted using test procedures derived from reference (d). Reference (c) requires that the preset conference bridge meet the minimum port configuration of 10 conferences with 20 conferees simultaneously (200 ports) for both the Multi-Function Switch and End Office Switch. Reference (e) is a memorandum from USSTRATCOM requesting a waiver of the minimum ports (200 ports) requirement for the SUT to support the USSTRATCOM SEATS. References (f) and (g) are e-mail letters from the Joint Chiefs of Staff (J6T and J6I) approving this request. This certification expires upon changes that affect interoperability, but no later than three years from the date of this memorandum.

3. This certification is based on interoperability testing conducted from 19 through 20 April 2004 at the JITC test facility, Fort Huachuca, AZ. The Certification Testing Summary (enclosure 2) documents the test results and describes the test network. Users should verify interoperability before deploying the SUT in an environment that varies significantly from that described.

4. The Functional Requirements used to evaluate the SUT and the interoperability statuses are indicated in table 1.

Table 1. SUT Functional Requirements and Interoperability Status

Interface/Signaling	Critical	Certified	Critical Functional Requirements	Met	GSCR Paragraph
T1 CAS (B8ZS/ESF, AMI/SF) DTMF Signaling	Yes[1]	Yes	Preset Conferencing	Yes[2]	2.6
			Conference Notification Record Announcement	Yes	2.6.1
			Conference Precedence Level	Yes	3.8.7.1
			Automatic Retrial and Alternate Address	Yes	2.6.2
			Bridge Release	Yes	2.6.3
			Lost Connection to Conferee or Originator	Yes	2.6.4
			Secondary Conferencing	Yes	2.6.5
			Address Translation	Yes	2.6.6

Legend:

AMI	- Alternate Mark Inversion	GSCR	- Generic Switching Center Requirements
B8ZS	- Bipolar Eight Zero Substitution	Mbps	- Megabits per second
CAS	- Channel Associated Signaling	SF	- Superframe
DTMF	- Dual Tone Multi-Frequency	SEATS	- Strategic Emergency Actions Telephone System
E1	- European Basic Rate (2.048 Mbps)	SUT	- System Under Test
ESF	- Extended Superframe	T1	- Digital Transmission Link level 1 (1.544 Mbps)
FR	- Functional Requirement	USSTRATCOM	- United States Strategic Command

Notes:

1 Per reference (c), the SUT can meet the external bridge requirements via one of the following interfaces: Integrated Services Digital Network Primary Rate Interface, T1 CAS, or E1 CAS. The SUT meets the critical interoperability FRs via a T1 CAS interface. Since T1 CAS is the only interface supported by this conference bridge, it is a critical interface.

2 References (f) and (g) are e-mail letters from the Joint Chiefs of Staff waiving the minimum port capacity of 10 conferences with 20 conferees for the SUT to be used specifically in support of the USSTRATCOM SEATS program.

5. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified but Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/gov users on the NIPRNet at https://stp.fhu.disa.mil/. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at http://jit.fhu.disa.mil (NIPRNet), or http://199.208.204.125/ (SIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at http://jitc.fhu.disa.mil/tssi.

6. The JITC point of contact is Mr. John Hooper, DSN 879-5041, or commercial (520) 538-5041. The e-mail address is hooperj@fhu.disa.mil.

FOR THE COMMANDER:

2 Enclosures a/s

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ADDITIONAL REFERENCES

(c) Defense Information Systems Agency (DISA), “Department of Defense Voice Networks Generic Switching Center Requirements (GSCR)," 8 September 2003
(d) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP)," 17 June 1999
(e) United States Strategic Command (USSTRATCOM)/CL111, Memorandum for the Joint Interoperability Test Command, "Requirements for the Strategic Emergency Actions Telephone System (SEATS)," 20 October 2003
(f) Chief, Interoperability Testing Branch (JCS-J6I), E-mail for the Joint Interoperability Test Command, "Certification Info for SEATS Bridge," 24 October 2003
(g) Joint Staff J6T, E-mail for the Joint Interoperability Test Command, "Certification Information for SEATS Bridge," 4 November 2003

CERTIFICATION TESTING SUMMARY

1. SYSTEM TITLE. Compunetix Mini-CONTEX® Audioconferencing Bridge with Software Release 1.836.d, hereinafter referred to as the System Under Test (SUT).

2. PROPONENT. Defense Information Systems Agency (DISA).

3. PROGRAM MANAGERS. Mr. Howard Osman, GS23, Room 5W23, 5275 Leesburg Pike, Falls Church, VA 22041, E-mail: Osmanh@ncr.disa.mil.

4. TESTERS. Joint Interoperability Test Command (JITC), Ft. Huachuca, Arizona.

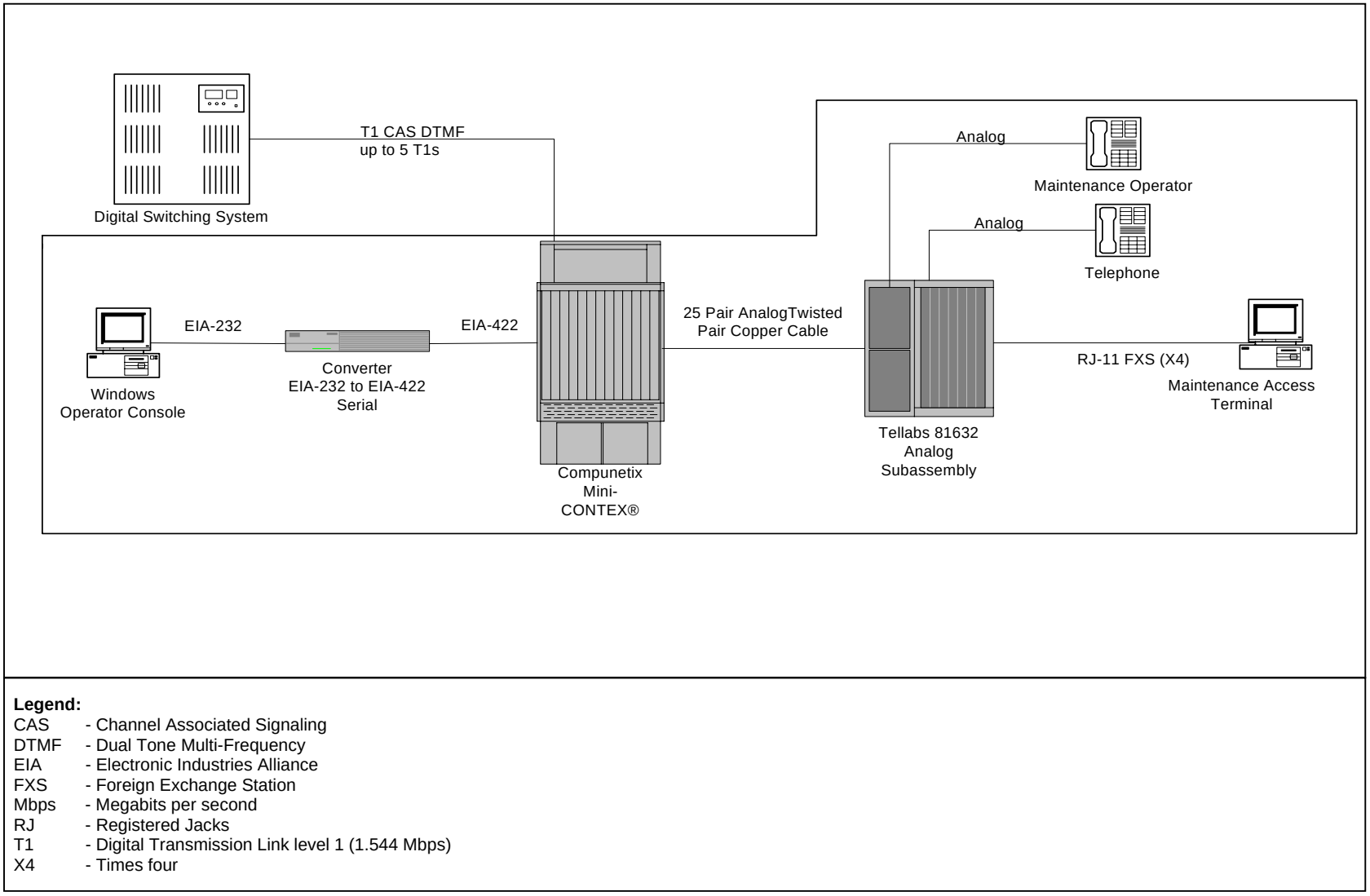
5. SYSTEM UNDER TEST DESCRIPTION. The SUT has the capacity to support up to five Digital Transmission Link level 1 (T1) interfaces with a capacity ranging from 24 to 120 ports. The operator console is a personal computer utilizing Microsoft Windows® - based operation and Windows Operator Console administration software. The SUT features include:

- Reserving, creating, controlling, and modifying conferences using touch-tone commands or standard web browser over the web.
- Automatically notifying participants of scheduling conferences through e-mail or fax.
- Digitally recording conferences for later playback, streaming, or CD-ROM distribution.

The SUT's component configuration is shown in figure 2-1.

6. OPERATIONAL ARCHITECTURE. The deployment of the SUT is shown in figure 2-2 which depicts the Generic Switching Center Requirement (GSCR) Defense Switched Network (DSN) operational architecture. Upon certification, the SUT can be deployed within the DSN to support the United States Strategic Command (USSTRATCOM) Strategic Emergency Actions Telephone System (SEATS).

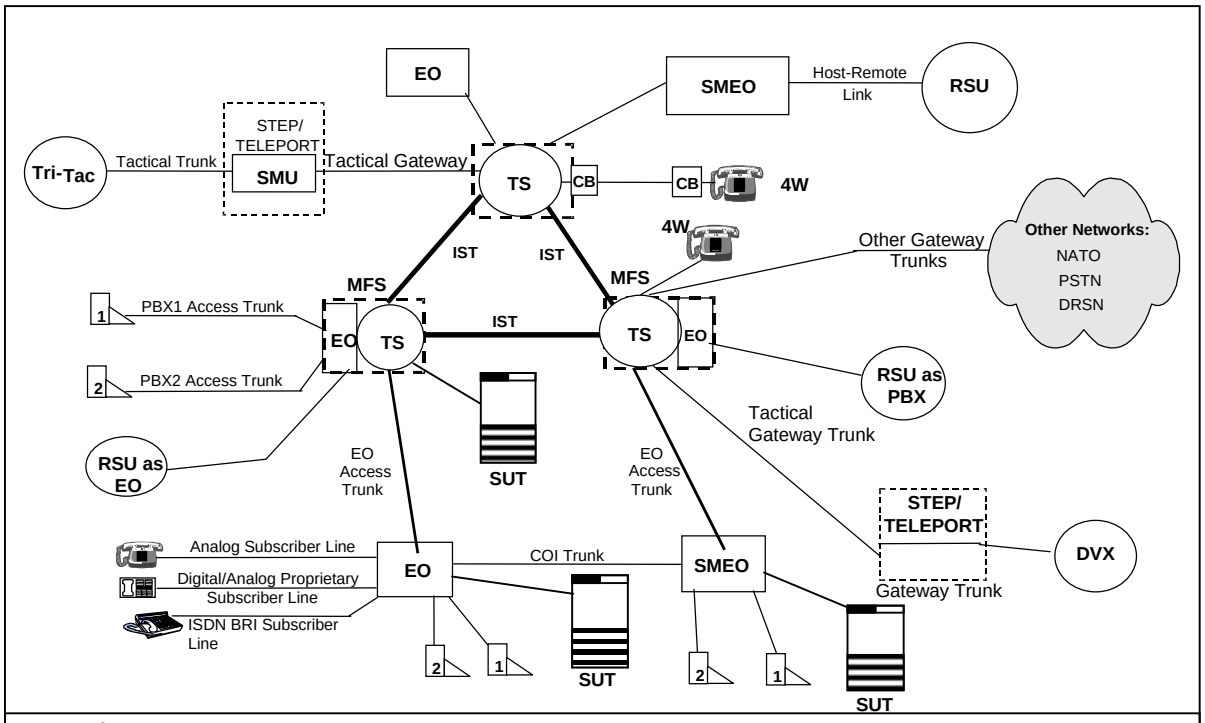
7. REQUIRED SYSTEM INTERFACES. Reference (c) requires that the preset conference functional requirements (FRs) be met with either an internal or external conference bridge. Reference (e) is a memorandum from USSTRATCOM requesting a waiver of the minimum ports requirement (200 ports) for the SUT to support the USSTRATCOM SEATS. References (f) and (g) are e-mails from the Joint Chiefs of Staff (J6T and J6I) approving this request. The external conference bridge interface can be met with one of the following interfaces: Integrated Services Digital Network Primary Rate Interface, Channel Associated Signaling (CAS) T1, or CAS European Basic Rate (E1). The SUT meets the critical interoperability FRs via a CAS T1. The FRs and Interoperability statuses are indicated in table 2-1.



Legend:

CAS	- Channel Associated Signaling
DTMF	- Dual Tone Multi-Frequency
EIA	- Electronic Industries Alliance
FXS	- Foreign Exchange Station
Mbps	- Megabits per second
RJ	- Registered Jacks
T1	- Digital Transmission Link level 1 (1.544 Mbps)
X4	- Times four

Figure 2-1. Compunetix Mini-CONTEX® Audioconferencing Bridges Component Configuration



Legend:

4W	- 4-Wire
BRI	- Basic Rate Interface
CB	- Channel Bank
COI	- Community of Interest
DRSN	- Defense Red Switch Network
DSN	- Defense Switched Network
DVX	- Deployable Voice Exchange
EO	- End Office
ISDN	- Integrated Services Digital Network
IST	- Inter-Switch Trunk
MFS	- Multifunction Switch
MLPP	- Multi-Level Precedence and Preemption
NATO	- North Atlantic Treaty Organization
PBX	- Private Branch Exchange
PSTN	- Public Switched Telephone Network
RSU	- Remote Switching Unit
SMEO	- Small EO
SMU	- Switched Multiplexer Unit
STEP	- Standardized Tactical Entry Point
SUT	- System Under Test
Tri-Tac	- Tri-Command Tactical
TS	- Tandem Switch

1 MLPP-Capable PBX

2 Non-MLPP PBX

Figure 2-2. DSN Architecture

Table 2-1. SUT Functional Requirements and Interoperability Status

Interface/Signaling	Critical	Certified	Critical Functional Requirements	Met	GSCR Paragraph
T1 CAS (B8ZS/ESF, AMI/SF) DTMF Signaling	Yes[1]	Yes	Preset Conferencing	Yes[2]	2.6
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			Bridge Release	Yes	2.6.3
			Lost Connection to Conferee or Originator	Yes	2.6.4
			Secondary Conferencing	Yes	2.6.5
			Address Translation	Yes	2.6.6

Legend:

AMI	- Alternate Mark Inversion	GSCR	- Generic Switching Center Requirements
B8ZS	- Bipolar Eight Zero Substitution	Mbps	- Megabits per second
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FR	- Functional Requirement	USSTRATCOM	- United States Strategic Command

Notes:

1 Per reference (c), the SUT can meet the external bridge requirements via one of the following interfaces: Integrated Services Digital Network Primary Rate Interface, TA CAS, or E1 CAS. The SUT meets the critical interoperability FRs via a T1 CAS interface. Since T1 CAS is the only interface supported by this conference bridge, it is a critical interface.

2 References (f) and (g) are e-mail letters from the Joint Chiefs of Staff waiving the minimum port capacity of 10 conferences with 20 conferees for the SUT to be used specifically in support of the USSTRATCOM SEATS program.

8. TEST NETWORK DESCRIPTION. The SUT was tested at JITC's Global Information Grid Network Test Facility in a manner and configuration similar to that of the DSN operational environment. Testing of the system's required functions and features was conducted using the test configuration depicted in figure 2-3.

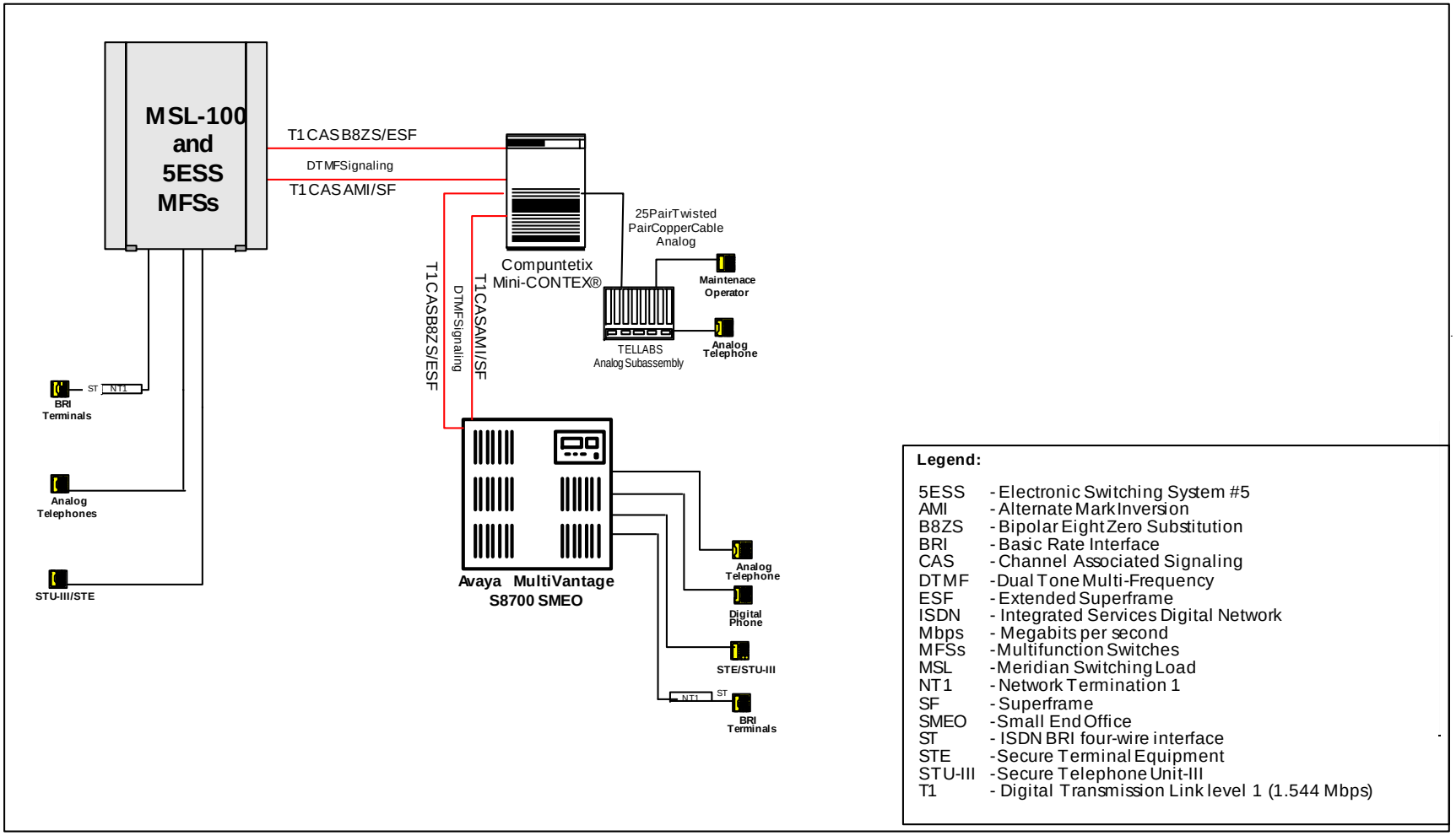

Figure 2-3. Test Configuration

9. SYSTEM CONFIGURATIONS. Table 2-2 provides the system configurations and their respective software used in the test.

Table 2-2. Tested System Configurations

System Name	Hardware/Software Release	
Avaya MultiVantage S8700	R012IX.00.0.213.0	
Nortel Networks MSL-100	MSL-17	
Lucent 5ESS	5E16.2 SU9	
Compunetix Mini-CONTEX® Audioconferencing Bridge	TELLABS 81632 Analog Subassembly	
	MAT- DOS 6.22	
	WOC - 2.535.7c	
	Analog Module (340 Module) - ANAL2011.ABS	
	Summation (358 Module) – SUMM1050.ABS	Summation (358 Module) – SUMM1040.ABS
	TDC (319 Module) – TDCM1010.ABS	TDC (319 Module) – TDCM1000.ABS
	Line Interface (361 Module) -T1VM3581.ABS Line Interface (364 Module) -T1R43580.ABS	Line Interface (361 Module) -T1VM3581.ABS

Legend:

5ESS - Class 5 Electronic Switching System
MSL - Meridian Switching Load

Note: Highlighted components are internal to the Compunetix Audioconferencing bridge.

10. TEST LIMITATIONS. None.

11. TEST RESULTS

a. Discussion

(1) Preset Conference (GSCR Paragraph 2.6). References (f) and (g) waive the SUT capacity minimum requirement of 10 simultaneous conferences with 20 conferees for use with End Office and Multifunction switches. Instead the SUT is certified for use within the DSN for the USSTRATCOM SEATS. The SUT meets the following FRs for Preset Conference:

(a) Ten separate conference bridges with each bridge having the capacity for one originator and 20 conferees (waived per references (f) and (g)).

(b) The capability to function as the “Primary,” “Secondary,” or “Alternate” bridge that will interconnect to other bridges that support up to a maximum of 191 conferees using all ten bridges off the same switch for the same conference (waived per references (f) and (g)).

(c) Preset Conference (abbreviated pool of subscribers/bridges) assignment of abbreviated numbers not greater than 20 switch address numbers per bridge. Such an address number being a combination of subscriber lines and other conference bridge accesses.

(d) Preset conference network(s) that require more than 20 conferees uses the cascading bridge method of expanding the number of conferees beyond 20 conferees.

(e) Each preset conference bridge is capable of Multi-Level Precedence and Preemption (MLPP) access control and is fully interoperable with the serving switch to permit full MLPP access and control.

(f) When a conferee's telephone is not answered, an automatic disconnect takes place within an adjustable interval of 15 to 60 seconds after a bridge leg is first connected to the conferee line.

(g) Originators of the preset conference have the capability of adding up to five non-programmed conferees (within the 21 conferees capability) to the conference by sequentially keying each add-on address and connecting the conferee to the bridge.

(2) Conference Notification Recorded Announcement (GSCR Paragraph 2.6.1). The SUT meets the following FRs for Origination and Recordings:

(a) Each bridge generates a notification recording that is audible only to those conferees on that bridge.

(b) When all conferees on a bridge have answered, the conference notification recording is removed automatically from the bridge two seconds after the last conferee answers.

(c) When the conference notification recording is removed automatically from a bridge, the notification recording from the adjacent bridge, if continuing, then becomes audible to the originator and to the conferees on the remaining bridge(s).

(d) When a conferee disconnects, a conference disconnect tone is sent to the originator and other conferees in the conference.

(3) Conference Precedence Level (GSCR paragraph 3.8.7.1). The SUT meets the following FRs for Conference Precedence Level:

(a) When a preset conference is initiated, an idle bridge in the desired conference group is seized and the conference connections attempted.

(b) When all conference bridges are busy, ROUTINE conference call attempts are connected to a "Line Busy" tone and the call attempts at precedence levels above ROUTINE reexamine all conference bridges on a preemptive basis.

(c) When all conference bridges are busy at the lowest level of precedence, the lower precedence bridge is preempted for a higher precedence conference call.

(d) When a conference bridge is preempted, a two-second burst of preempt tone is provided to the conferees on the existing conference. The existing connections to the bridge are dropped and the bridge automatically sends an on-hook signal to the associated switch ports to permit the new connections to be established.

(e) When the requested precedence level is equal to or lower than that of the existing conference, the connection is denied and the caller is provided a Blocked Precedence Announcement.

(4) Automatic Retrial and Alternate Address (GSCR paragraph 2.6.2). The SUT meets the following FRs for Automatic Retrial and Alternate Address:

(a) Off-hook supervision is returned to the originator from each bridge when all conferees have answered or when the originator has forced the conference.

(b) If answer supervision is not returned from any conferee location within an adjustable interval of 15 to 60 seconds, one automatic retrial is made to the primary conferee address.

(c) Conferees are provided with alternate addresses that the SUT tries when the call fails to complete to the primary address.

(d) When a call to a primary address fails to complete within two trials, the call is directed to an alternate address, if provided, and two call attempts are made to the alternate address.

(5) Bridge Release (GSCR paragraph 2.6.3). The SUT meets the following FRs for Bridge Release:

(a) The primary bridge is released when on-hook supervision is received on the originating port of the primary bridge or on all of the other conference bridge ports.

(b) If on-hook supervision is received on the originating port of secondary or tertiary bridges, all subsequent connections and equipment are released.

(c) A conference bridge is released after all attempts at call completion are made and no answers are received on all ports.

(d) A release of conference bridges is such that it is impossible for the bridges to become locked together.

(6) Lost Connection to Conferee or Originator (GSCR paragraph 2.6.4). The SUT meets the following FRs for Lost Connection to Conferee or Originator:

(a) If the originator is lost or preempted, the bridge is held up long enough for preempt tone to be given to all conferees.

(b) If a connection to a conferee is lost, due to disconnection or preemption, a distinctive disconnect signal, defined as a conference disconnect tone, is provided to the conference originator and all conferees.

(7) Secondary Conferencing (GSCR paragraph 2.6.5). The SUT meets the following FRs for Secondary Conferencing:

(a) When a conference is activated and two or more of the addressees require a secondary bridge, the address is processed in the normal manner and directed toward the office serving the secondary equipment.

(b) The conference equipment is designed so that it may be used alternatively for primary or secondary conferences.

(c) Identical operational features, such as application and removal of the conference notification recorded announcement, are provided for both primary and secondary conferences.

(8) Address Translations (GSCR paragraph 2.6.6). The SUT meets the following FRs for Address Translations:

Translation of the seven-digit conference address is met as follows:

1. The first three or five digits of the address are translated to identify the specific destination numbering plan area and switching center.

2. The first two digits of the four-digit line number are utilized to identify the switching center at which the conferencing equipment is located.

3. The four-digit line number is translated to indicate the particular preset conference arrangement.

b. Test Summary. The SUT meets the critical interoperability requirements for preset conferencing and is certified for use in the DSN for USSTRATCOM SEATS, in accordance with references (c), (e), (f), and (g).

12. TEST AND ANALYSIS REPORT. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified but Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive

interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/gov users on the NIPRNet at https://stp.fhu.disa.mil/. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at http://jit.fhu.disa.mil (NIPRNet), or http://199.208.204.125/ (SIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at http://jitc.fhu.disa.mil/tssi.